SELECTIONS FROM THE RECORDS

OF THE OFFICE OF THE

FINANCIAL COMMISSIONER, PUNJAB.

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No. 23.

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F—2—15 Lahore-29 October 18[illegible]

29 Copies.

Selection from the Records of the Financial Commissioner's office No. 23.

No. LI.—MORTALITY AMONG CATTLE FROM EATING JOWAR STALKS.

No. 3982, dated 22nd June 1878.

From—J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Punjab,
To—All Revenue Officers, Punjab.

The following papers on the subject of death of cattle, caused by eating jowár and bájra stalks in a dry season, are circulated for information, in continuation of Revenue Selection, No. XXIII of March 1869, on the same subject.

No. 302, dated 9th August 1877.

From—T. Roberts, Esquire, Officiating Deputy Commissioner, Gurgaon,
To—Major W. G. Waterfield, Officiating Commissioner and Superintendent, Delhi Division.

The tahsíldár of Fírozpur reports that the jowár and bájrá plants in the villages of Nagína, Karára, Mandi-Khera, Bhadas and Marorá have been attacked by insects, and that cattle browsing on them suddenly sicken and die. Several deaths (9) are reported ; and of the cattle attacked, very few recover.

No. 188.

Commissioner's Office, Delhi, the 15th August 1877.

Copy of above forwarded to J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Punjab, for information, with the remark that the Deputy Commissioner of Gurgaon has been requested to make further enquiries as to the kind of insects referred to.

Circular Memo. No. 5024, dated 4th September 1877.

From—J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Punjab,
To—All Commissioners and Deputy Commissioners, Punjab.

The Commissioner of Delhi, having reported that, in the Gurgaon district, cattle have died from eating jowár and bájrá stalks, which were supposed to have been attacked by insects, attention is invited to the printed Selection of correspondence on this subject, No. XXIII of March 1869, when similar facts were observed under climatic conditions similar to those of the present year; and it is requested that the results of any observations and enquiries that district officers may make, may be reported to this office by Commissioners, if they think it proper and necessary to report them.

No. 350, dated 11th September 1877.

From—T. Roberts, Esquire, Officiating Deputy Commissioner, Gurgaon,
To—Major W. G. Waterfield, Officiating Commissioner and Superintendent, Delhi Division.

The tahsíldár of Gurgaon reports that the jowár plants in the village of Silokna have been attacked by insects, and that cattle browsing on them, suddenly sicken and die. Three deaths are reported.

No. 208.

Commissioner's Office, Delhi, the 13th September 1877.

Copy of above forwarded to J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Punjab, for information.

No. 230, dated 3rd November 1877.

From—Colonel C. A. McMahon, Commissioner and Superintendent, Hissar Division,
To—J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Punjab.

In reply to your Circular Memo. No. 5024 of the 4th September, I have the honor to annex copies of the replies received from district officers.

2. Para. 3 of the Deputy Commissioner of Hissár's report contains, I think, the best description of the disease, which appears to be some affection of the throat—acute inflamation of the mucus membrane I presume,—arising from the irritation caused by sharp pointed bits of jowár sticking in the membrane.

3. The Deputy Commissioner of Rohtak's report, especially paras. F. G. and H., appear to support this view.

No. 271, dated 25th October 1877.

From—Colonel T. F. Forster, Deputy Commissioner, Hissár,
To—Colonel C. A. McMahon, Commissioner and Superintendent, Hissar Division.

Referring to Financial Commissioner's Circular Memo. No. 5024 of the 4th ultimo, regarding the alleged mortality of cattle from eating jowár and bájrá stalks, which were supposed to have been attacked by insects, I have the honor to submit the result of inquiries made here in connection therewith.

2. Jowár and bájra, when stunted for want of rain, and before the ear is formed, is locally called "*bakona.*" The latter, it appears, is not usually considered injurious; but cattle eating the former are, it is said, suffocated by the dry and sharp leaves sticking in their palate and throat, the stomach being also much distended, and if not speedily relieved, the animal dies in a very few hours.

3. The disease is generally and expressively known as "*patta lag*" or leaf choke, and the usual remedies applied are either to extract the offending substance from the throat, or to thrust it down with a mixture of ashes and water, or mud and water, the object in each case being to remove, or to force the obstruction down into the stomach. In some cases ghee is also administered, probably as a laxative to work out the substance from the system.

4. The Hansi tahsíldár is the only one who mentions the existence of a green worm with a black head, which, it is stated, attacks both jowár and bájra stalks in seasons of drought, and that cattle eating thereof, when so affected, die from suffocation. But as the treatment adopted is precisely the same, it is clear that the disease is not attributed here to anything poisonous or noxious in the worm, but to the *obstruction* which it is sought promptly to remove. I endeavoured to procure a specimen of the worm alluded to, and would have sent a coloured sketch of it with this letter, but none could be found.

5. A few cattle in all the tahsíls are reported to have died during the past season from this cause.

No. 469, dated 20th October 1877.

From—E. B. Francis, Esquire, Officiating Deputy Commissioner, Rohtak,
To—Colonel C. A. McMahon, Commissioner and Superintendent, Hissár Division.

In reference to Financial Commissioner's Circular Memo. No. 5024 dated 4th ultimo, regarding jowár poisoning, I have the honor to report that I have made inquiries on the subject personally, and through tahsíldárs with the following results.

2. *A.*—It is only jowár that becomes hurtful. Bájrá is not believed, in this district, ever to exhibit similar properties.

B.—Only horned cattle are affected.

C.—A very small quantity of the unwholesome *chari*, two or three handfuls, will cause death. This fact militates against Mr. Smyth's theory that the nature of the affection is simply distention from greedy feeding.

D.—The poison is generally believed not to be due to the presence of insects (although both the small orange insect described and a long filamentous worm mentioned in the Indian Agriculturist of date 1st ultimo, and called *bhouri*, have been observed), but to be developed in the juice of the plant, when its growth is checked by want of moisture while it is in blade and before it has formed a jointed stalk.

E.—Drying does not remove the poison, but somewhat mitigates it; stunted jowár, if well dried, can be used after some time without bad effects, if mixed with a sufficiency of other fodder. It is also said that cattle may get used to the dangerous *chari* in course of time.

F.—The symptoms of poisoning are giddiness, stoppage of breath, distention of abdomen, foaming at mouth and speedy death. The beasts seldom survive 3 hours.

G.—It is an open question whether the cause of death is not rather choking than true poisoning. It is suggested that the undeveloped leaf forms a ball, which cannot be conveyed to the stomach, but clogs the throat. *Post mortem* examinations, as reported by Chamárs, are not decisive on this point. It seems to deserve further inquiry.

H.—The remedies adopted are drenches of water thickened with mud or ashes, or oil, or *dahi.* The object seems to be to clear the gullet of obstructions. Immersion in a pond is also adopted. These remedies are very seldom successful.

No. 2469, dated 27th November 1877.

From—A. Brandreth, Esqr., Commissioner and Superintendent, Jullundur Division,
To—J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Punjab.

Has the honor to submit for information copy of Deputy Commissioner, Hoshiárpur's report No. 632, dated 14th current, on poisonous qualities of jowár and bájra.

No. 632, dated 14th November 1877.

From—W. Coldstream, Esqr., Deputy Commissioner, Hoshiárpur,
To—A. Brandreth, Esqr., Commissioner and Superintendent, Jullundur Division.

With reference to Financial Commissioner's Circular Memo. No. 5024, dated 4th September 1877, I have the honor to offer a few remarks on the subject of the alleged poisonous qualities of jowár and bájra in seasons of drought.

CHARI—is generally recognised to be unhealthy food for cattle until the ear is formed, and the deleterious qualities it possesses are increased by a season of drought, when it is said to be *aur ke mari* or drought stricken.

There is a wild grass, common in this district, which closely resembles *chari*, and which is also largely browsed by cattle, called *barru.* This is similarly deemed, in a still higher degree, poisonous, if eaten before the ear comes out.

2. *Jowár* and *bájra* are credited with the same qualities, but not so generally, and in a much less degree as regards *jowár*; indeed, opinions are divided as to whether it ever acquires these poisonous qualities.

The stalks of these plants, if eaten by cattle, in a season of drought before they are properly grown are said to cause *garmi*. The tahsíldár of Dasuah informs me that this year both *jowár* and *bájra* were poisonous till the rain fell.

3. In some parts of the district, the poison in these cases is said to reside in a certain insect which makes it habitat (*patha*) in a small web or cocoon in the stalk. This opinion appears to be shared by a writer in a recent number of the Indian Agriculturist, whose letter I annex. The general belief here is, however, that it is not an insect but the drought, which, in some unexplained way, affects the juices of the plant.

4. The effects of *chari* (and *barru*) when eaten too early in the season, especially when the rains have not fallen at the ordinary time, are well known, and dreaded by all owners of cattle. It is curious that horses are not so affected, at least by *barru*. The poison seems to be of a most active character, often causing death in a few hours. The symptoms are swelling of the belly, and head symptoms, causing the animal to turn round and round. The remedies commonly applied are plunging the animal into a pond or tank as quickly as possible. This is a remedy universally known and it is said to be very effectual.

In Dasuah tahsíl this year, no fewer than 120 cattle were poisoned by eating green *chari*, of which 115 died, and 5 are said to have been saved by being plunged into water.

No. 225, dated 29th May 1878.

From—D. C. Macnabb, Esq., Commissioner and Supdt., Rawalpindi Divn.,
To—J. A. E. Miller, Esq., Secy. to Financial Commissioner, Punjab.

I have the honor to reply to your Circular Memo. No. 5024, of 4th September last, calling for information in regard to cattle dying from eating *jowár* and *bájra* stalks which were supposed to have been attacked by insects.

In the Rawalpindi district, 63 head of cattle died during 1877 in tahsíl Gujar Khan, from eating *jowár* and *bájra* stalks rendered unfit for use by drought and other climatic influence, but no death of cattle from this cause occurred in any other part of the district. No special observation, however, seems to have been made at the time, as prescribed in the printed correspondence. The Deputy Commissioner thinks consequently that it would be advisable to have the abstract of the correspondence printed in vernacular and circulated to tahsíldárs, as otherwise it is probable the particular points requiring attention, would escape observation at the time, and that it is useless to make enquiries afterwards.

In the Jhelum district, there was a great deal of mortality among the cattle during the past autumn owing to the failure of the autumn rains. And among other causes of death, a very frequent one in all parts of the district was the eating of young *bájra* and *chari** especially the latter.

Captain Wace, the Deputy Commissioner remarks as follows :—

" Deaths from this cause are more or less frequent every autumn, the usual " explanation being that the cattle break into a field of the young crop and eat up " rapidly and greedily a great deal more than is good for them; distention and acute " pain follows, and the animal dies in an hour or two.

* *Chari* is *jowár* sown thick to make it come up fine and tender; and so suitable for fodder. If sown sparsely, the stalk becomes coarse and woody.

" When the usual autumn rains fail, several causes combine to make deaths of " this sort among the cattle more frequent. The period (which commences with the " reaping of the wheat and lasts till the autumn rains have produced a supply of green " grass and fodder) during which the cattle live on a scant supply of dry fodder, is " prolonged; and, consequently they are at the end of this period peculiarly liable to " suffer if suddenly gorged with a large feed of green crop. At the same time, the " indications of short autumn rains will make the cultivators supply their cattle with " young *bájra* and *jowár* much more sparingly than they do when plentiful rains " give them the hope of a good crop. And, lastly, there is no doubt that a young " *bájra* or *jowár* plant, stunted in its growth by the failure of the usual rains, is not " at all the same healthy food as the properly nourished plant.

" The natives believe that the unnatural deferring of the usual seeding time " which is caused by the cessation of the rains in bad seasons, has a deleterious effect " on the quality of the plant. And yet, when they lose heart about a *bájra* or *jowár* " field, it is not uncommon for them to turn their half famished cattle into it, argu- " ing that there is no hope of its coming to anything, the beasts had better have " it while it is green.

" The people of this district do not believe that the death of cattle after eat- " ing such crops in dry seasons is due to any insect which infests the crop. But they " do believe that the *bájra* and *jowár* become poisonous in a dry autumn. Whether " this is so or not, there is no question that deaths among cattle by asphixiation " after eating the stunted *jowár* and *bájra* are at such seasons very frequent. And " that such is the case can hardly be a matter of surprise to those who have seen how " hardly the cattle fare in an autumn drought.

" The *barru* grass which grows in the *jowár* fields is just as harmful to the cattle, under such circumstances, as the *jowár* and *bájra*."

In the Gujrat district, during the months of August and September, considerable mortality occurred among the cattle, which is attributed partly to drought and partly to use of diseased *jowár* and *bájra* stalks, the effects of the latter fodder being frothing of the mouth, swelling of the stomach followed by convulsions and death of the cattle affected. In some instances the cattle were saved by the administration of purgatives. The diseased stalks were not retained for analysis, and, therefore, it cannot be positively stated whether or not they contained poisonous insects.

In the Shahpur district, on the 23rd and 24th September, 15 head of cattle strayed from Mulakwál and Chakwál into some stunted *jowár*, and 13 of these died within an hour of eating it. Two however recovered under treatment. This treatment consisted of enveloping the animal in wet sheets, and administering a seer of milk diluted in three seers of cold water given to drink, followed two hours after by a seer of *bájra* átá dissolved in 3 seers of cold water being given internally.

Colonel Parsons appears to have given attention to the subject, and adheres to the opinion expressed by him while Deputy Commissioner of Karnal in 1869.

No. 554 dated 8th November 1877.

From—M. Macauliffe, Esquire, Deputy Commissioner, Montgomery,
To—Colonel S. F. Graham, Commissioner and Superintendent, Mooltan Division.

With reference to Financial Commissioner's Circular Memo. No. 5024 dated 4th September last, I beg to report, after enquiry from the tahsíldárs, that no cattle have died in this district from eating *jowár* and *bájra* attacked by insects.

The *jowár* was attacked by an insect called *tela* in the Dipálpúr and Pákpattan tahsíls, but no deaths resulted among the cattle therefrom.

There have been some deaths from murrain (*murch kur*), but not to any serious or unusual extent.

No. 314 dated 12th October 1877.

From—*Major F. D. Harington, Deputy Commissioner, Muzaffargarh,*
To—*Col. S. F. Graham, Commissioner and Superintendent, Mooltan Division.*

With reference to Financial Commissioner's Circular Memo. No. 5024 dated 4th September 1877, has the honor to report the result of the enquiries made through the tahsíldárs as to any cattle having died from eating *jowár* and *bájra* stalks.

In the Muzaffargarh and Alipur tahsíls, no cattle have died this year from this cause, for *jowár* and *bájra* stalks were not attacked by insects, as they were sufficiently watered, and it is only in the absence of rain and the required watering that insects attack them and they become injurious to cattle.

In the Sanáwán tahsíl, 85 head of cattle died this year from this cause, *viz.*, 20 cows, 37 bullocks, 18 buffaloes, 7 goats and 3 sheep. The number of villages in which these losses occurred, is only eight, and the loss is attributable to the want of rain in the localities in which the villages are situated.

In other villages, no cattle suffered on this account.

No. 1108, dated 9th November 1877.

Commissioner's Office, Mooltan.

Copy forwarded to J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Punjab, for information, with reference to Financial Commissioner's Circular Memo. No. 5024 dated 4th September last.

EXTRACTS FROM NEWSPAPERS.

"THE INDIAN AGRICULTURIST," PAGE 290, 1ST OCTOBER 1877.

Mr. Buck notices, we observe, that several cases have been reported to the department of Agriculture in the North-West Provinces, during the present season of drought, of the death of cattle which have been allowed to graze in *jowár* fields. Similar cases occured in 1868, another year of deficient rain-fall. The facts would appear to show that *jowár* in a dry season becomes a rank poison, for in all the cases brought forward, it has proved fatal within a few hours to all cattle which have eaten it. "Steps have been taken to analyse the plant" says Mr. Buck, "but I shall be glad if any of your readers can, in the meanwhile, give any explanation why *jowár* becomes poisonous in the absence of rain, as I have no reason to believe that such is the case in an ordinary season." A discussion on the subject ensued in the *Pioneer*, and it appears that *jowár* is noxious and often fatal to cattle, even in ordinary seasons, until it has grown to a certain height, and has got the three or four knots forming the stalk. In fact *jowár* seems to be noxious to cattle, until the grain commences to form. Goats can eat it with impunity at all times, and horses seem likewise to escape any injury from being fed on it, when still very young.

A NEW INSECT ON JOWAR AND CHURREE.

To—*The Editor of the Delhi Gazette.*

Owing to drought and want of rain, the growths of *jowár* and *chari* sown at the first fall of rain in June, and by irrigation, are now from the scorching westerly winds, totally stunted, and sad to say a thin insect about an inch and a half long called *beheree*, has appeared in the tender leaves of the plant. It feeds on it, and woe be to the cattle which eats the stunted sprout of the *jowár* and *chari* where the insect remains: it is certain death to the cattle. A short time ago, a boy led about four or five heads of cattle to graze; he sat down under the shade of a tree in the plains and let the cattle go: these dumb animals made their way into a green *chari* field, and ate the tender shootings and all died. Some time after, the boy's father came, and to his surprise saw all the cattle lying in the field and his boy sleeping. The only remedy is for the cattle to remain under water with the head up for some hours or to be made to drink a solution of *potnee mitee* (a sort of white mud used for white-washing houses by the poorer classes) or to swallow about four ounces of *ghee* which take effect in restoring the animal to life. It is said that the poison from eating the insect is of a very heating and stupefying nature, and that the cattle die from heat in the system and with their tongues projecting.

Persons having cows or buffaloes or other cattle, and who get green fodder daily from the bazar or from any other place, not watered, and find the plant stunted, should be very cautious of giving it to their cattle; they should examine well the upper part of the young leaves where the insect *beheree* lives. Every native knows it. The safest plan would be to cut off a span of the stalk, and then give it to the cattle to eat. A little precaution will save many cattle from falling victims.

A good heavy shower of rain generally kills the insect and makes the plant resume its growth. If the cultivators only irrigated their fields from wells, the insect would disappear, for it is only those fields which want moisture, that produce these deadly insects which are so destructive to the cattle feeding on the plant.

All cattle should get good water to drink, and they should be kept from drinking from such ponds as are kept filthy. In the season of drought great care should be taken for the preservation of cattle.

(Sd.) XENOPHON,

To—*The Editor of the Pioneer.*

SIR,

I have observed several letters in your paper referring to what some of your correspondents call poisonous *jowár*. This grain, I believe to be the same as that which we call *jenerra* in Behar. If green oats, wheat, barley, &c., before they come into ear can be called poisonous, then I have no objection to hearing *jenerra* so called, the result on home-fed cattle being exactly the same. The cattle eat a grain food that they are totally unused to, and it generates gas. Nearly everybody who has in England lived in the country has seen cattle at some time or other ill from eating green crops, and have also seen the Vet operate. I do not say that the same receipt can be used here amongst Hindus; but if after cattle (in this country) have been trespassing in young *jenerra* they are at once taken in hand, 90 per cent. can be cured by simply not allowing them to drink water, and keeping them walking for a few hours. Half of the cattle are killed in this country, because, after being taken ill from eating green crops, they are allowed to drink. Nobody ever heard of a native in his proper senses driving his cattle into a standing crop of *jenerra* to feed. The natives cut their *jenerra* at all times and at all sizes and if it is very *kacha* after chopping it up they soak it for a few hours in water, mixing a little *bhúsa* (straw) with it. This is the chief food on which, in-

cluding working bullocks, the natives feed their cattle during the rains in Behar. There is only one cultivated plant I know of in Behar that will kill cattle in its dry state. This is the castor oil plant. Just before the rains (say a month) after the castor oil seed has been collected, the plant is cut down to within a foot of the ground, in order that it may fling out new shoots from the stem. The old stalks are generally left on the ground for a couple of months to dry for firewood. If, during the first shower of rain, cattle are allowed to eat the dried up leaves which have been moistened with rain, 40 per cent. of the cattle will die within an hour of eating it. After the first rain has fallen on the dried castor-oil leaves, they become harmless. Can any of your numerous readers account for this? When cattle are ill from this cause, the illness appears to be exactly the same as that which takes place from bullocks eating green crops. If *jenerra* is poisonous, how is it that the deer in Oudh, in the semi-cultivated parts have not been long ago exterminated? Simply because they are used to eating green crops.

THE INDIAN AGRICULTURIST.

Jowar as Fodder.

Sir,

In your editorial notes of your valuable journal of October last, I have read with attention Mr. Buck's accounts regarding the deaths of cattle, which have been allowed to graze in the *jowár* fields. It is a fact, and is everywhere in this part of the country known, that cattle die within a few hours after partaking a single morsel of a young shoot of the *jowár* plant. Last year, during jamabandi in the famine district of Ashtee, Zillah Bud, H. H. the Nizám's dominions, I saw a young bull lying on the ground with a distended stomach, panting for breath at the point of death, within a few yards of a *jowár* field. Upon enquiry of the ryots close by, I came to know that the bull, whilst grazing in the *jowár* field, devoured with the plant a small worm which is fatal to the cattle that devours it. From this, you will see that it is not the *jowár* plant, but the worm that is the rank poison which Mr. Buck refers to. I have seen the worm, and two specimens of it I enclose with this for your inspection. Out of the two, the one is full grown, and the other is rather small. I also send a young shoot of the *jowár* plant, with the worm in it, but I am afraid it will not reach you in a state fit for close examination; still, it will give you an idea of the size and stage to which the plant has grown. The ryots say that the worm is produced within the plant during all seasons, and if there be rain, after the shoots have come out, a small quantity of mud gets into the middle leaf of the plant, and within this leaf the worm is produced. They have a cure for this evil, they say, which I shall let you know in my next.

I trust that this information, for the present, may prove satisfactory to Mr. Buck.

Camp Ashtee, H. H. The Nizam's Dominions, *7th November 1877.*

(Sd.) S. JEWANJEE.

Note.—We are afraid our correspondent has been misled in this matter. The cattle die from the gaseous expansion of their stomachs, the consequence of devouring large quantities of green fodder to which they are not accustomed.—Ed. I. A.
